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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,665	02/08/2001	Clay H. Fisher	50N3698.01/1564	7904

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Gregory J. Koerner
SIMON & KOERNER LLP
Suite B
10052 Pasadena Avenue
Cupertino, CA 95014

EXAMINER	
VIEAUX, GARY	
ART UNIT	**PAPER NUMBER**
2612	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/780,665	Applicant(s) FISHER ET AL.	
	Examiner Gary C. Vieaux	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Effective Filing Dates

For purposes of examination, claims 1, 2, 21, 22, and 42 have been found to be supported under the first paragraph of 35 U.S.C. 112 by the provisional application, and have received the effective filing date of March 6, 2000, which is the current effective filing date of the provisional application, application number 60/187,337. Select portions claims 3 and 23, as they relate to the target object including a document, have been found to be supported under the first paragraph of 35 U.S.C. 112 by the provisional application, and have received the effective filing date of March 6, 2000. All remaining independent claims and dependent claims have received the effective filing date of February 8, 2001, which is the current effective filing date of the non-provisional application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 19-24, 39-40, and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Dunton et al. (US #6,304,284.)

Regarding claim 1, Dunton teaches a system for creating a still image of a target object by utilizing a video camera, comprising: a support device (col. 4 lines 49-57) configured to transport said video camera (col. 2 lines 22-23) across said target object during a scanning procedure (fig. 1A; col. 2 lines 50-53); and a scanning manager coupled to said video camera for analyzing scan motion data from said scanning procedure, and responsively generating still frames corresponding to said target object (fig. 1A indicator 140; col. 4 lines 25-34).

Regarding claim 2, Dunton teaches all the limitations of claim 2 (see the 102(e) rejection to claim 1 supra), including teaching a system wherein a stitching software program combines said still frames to produce said still image, said stitching software program residing on one of said video camera and an external computer device (col. 4 lines 25-34; col. 6 line 20 – col. 7 line16.)

Regarding claim 3, Dunton teaches all the limitations of claim 3 (see the 102(e) rejection to claim 1 supra), including teaching a system wherein said target object includes one of a document, a photographic image, a physical object, a graphics image, and a geographic location (fig. 1A.)

Regarding claim 4, Dunton teaches all the limitations of claim 4 (see the 102(e) rejection to claim 1 supra), including teaching a system wherein a motion detector generates said scan motion data by monitoring said support device during said

scanning procedure, said scan motion data including at least one of a scan speed and a scan direction (col. 4 lines 57-62.)

Regarding claim 19, Dunton teaches all the limitations of claim 19 (see the 102(e) rejection to claim 1 supra), including teaching a system wherein said video camera performs a reiterative combination procedure, said reiterative combination procedure repeatedly combining an immediately-preceding one of said still frames and a current one of said still frames to generate said still image (col. 6 line 20 – col. 7 line 51.)

Regarding claim 20, Dunton teaches all the limitations of claim 20 (see the 102(e) rejection to claim 1 supra), including teaching a system wherein said scanning procedure is performed by one of a moving video camera process (fig. 1A and 1B), a moving target object process, and a stationary camera-stationary target process that utilizes a moving scanning reflector element (fig. 3A.)

Regarding claims 21-24 and 39-40, although the wording is different, the material is considered substantively equivalent to claims 1-4 and 19-20, respectively, as discussed above.

Regarding claim 42, Dunton teaches a system for creating a still image of a target object by utilizing a video camera, comprising: means for transporting said video camera across said target object during a scanning procedure (col. 4 lines 49-64); means for analyzing scan motion data from said scanning procedure (col. 6 lines 20-23); and means for generating still frames corresponding to said target object (col. 4 lines 26-30.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-11, 14, 25-31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (US #6,304,284), in view of Kaye (US #5,497,188.)

Regarding claim 5, Dunton teaches all the limitations of claim 5 (see the 102(e) rejection to claim 1 supra), except for a direct teaching a system wherein said support device includes a cradle that is initially positioned at a starting index of a scan track to allow said video camera to frame said target object using at least one of a focus mechanism and a zoom mechanism. However, Dunton does teach the camera being initially positioned at a starting index of a scan track (col. 4 lines 35-48), the camera moved in a lateral direction by a motor driven apparatus (col. 4 lines 51-54), and the system using focusing information from the lens (col. 3 lines 42-43; col. 4 lines 26-30.)

Nevertheless, Kaye teaches a similar camera system wherein said support device includes a cradle (fig. 1 indicator 40) and as well a proper focusing and zooming prior to image capturing (col. 9 lines 29-41.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cradle and camera operation as taught by Kaye, with the system as taught by Dunton. One of ordinary skill in the art at the time the invention was made would be motivated to combine these teachings so that stable camera operation could begin in a state which

provides a point of reference for later image manipulation, as well as in a state where the images may be captured clearly, and within a desired magnification.

Regarding claim 6, Dunton and Kaye teach all the limitations of claim 6 (see the 103 rejection to claim 5 supra), including teaching a system wherein a system user enters scan parameters into said video camera for performing said scanning procedure, said scan parameters including at least one of a scan speed control, a scan direction control, a still frame time interval control, a scan overlap control, and a scan resolution control ('188 col. 9 lines 5-19.)

Regarding claim 7, Dunton and Kaye, teach all the limitations of claim 7 (see the 103 rejection to claim 6 supra), except for directly teaching a system wherein said video camera generates an error warning on a user interface when said system user enters an invalid scan parameter, said invalid scan parameter including a negative overlap setting which would cause said still images to be aligned in excess of a minimum adjacent still image overlap value. However, Dunton does teach a system wherein said video camera generates an invalid scan parameter error warning on a user interface when said system attempts to record beyond a valid scan parameter, said invalid scan parameter including a negative overlap setting which would cause said still images to be aligned in excess of a minimum adjacent still image overlap value (col. 8 lines 10-51.) In light of the teaching in Dunton, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the camera generate an error warning relating to the entry of an invalid scan parameter on the user interface of the system as taught by Dunton and Kaye. One of ordinary skill in the art at the time the

invention was made would have been motivated to generate such a minimum overlap warning in order to notify a user when entering an improper scan parameter into a system, instead of waiting to notify a user until after the scanning procedure had begun.

Regarding claim 8, Dunton and Kaye teach all the limitations of claim 8 (see the 103 rejection to claim 5 supra), including teaching a system wherein said cradle begins traveling along said scan track during said scanning procedure, said video camera responsively beginning to capture and store video data that corresponds to said target object ('188 col. 9 lines 33-46; '284 fig. 2 and col. 4 lines 35-67.)

Regarding claim 9, Dunton and Kaye teach all the limitations of claim 9 (see the 103 rejection to claim 8 supra), including teaching a system wherein a display manager in said video camera displays an active scan mode indicator on a user interface of said video camera during said scanning procedure, said active scan mode indicator displaying user settings for said scan parameters ('188 col. 8 line 50 – col. 9 line 4.) Official Notice is taken regarding the fact that camera displays are a commonly found means of output of data and images, as well as the practice of user settings and camera parameters being outputted onto a camera's display; concepts which are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to indicate user settings for given scan parameters, so that a user may be able to confirm correct or incorrect settings early in a scan session, as well as be able to know their current status in the event they need to be altered.

Regarding claim 10, Dunton and Kaye teach all the limitations of claim 10 (see the 103 rejection to claim 8 supra), including teaching a system wherein said video

camera captures said video data using a complete video frame format in which a series of sequential video frames each contain a complete pixel set ('284 col. 6 line 20 – col. 7 line 16.)

Regarding claim 11, Dunton and Kaye teach all the limitations of claim 11 (see the 103 rejection to claim 8 supra), including a teaching a system wherein a motion detector captures scan motion data corresponding to movements of said video camera, said motion detector providing said scan motion data to said scanning manager of said video camera, said scan motion data including at least one of a scan speed and a scan direction ('284 col. 4 lines 25-34 and 49-62.)

Regarding claim 14, Dunton and Kaye teach all the limitations of claim 14 (see the 103 rejection to claim 11 supra), including a teaching a system wherein said scanning manager extracts an initial still frame of said target object from said video data that is captured by said video camera during said scanning procedure ('284 col. 6 lines 20-25; col. 7 lines 35-43.)

Regarding claims 25-31 and 34, although the wording is different, the material is considered substantively equivalent to claims 5-11 and 14, respectively, as discussed above.

Claims 12 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (US #6,304,284) and Kaye (US #5,497,188) as applied to claims 11 and 31 above, and further in view of Sussman et al. (US #4,793,812.)

Regarding claim 12, Dunton and Kaye teach all the limitations of claim 12 (see the 103 rejection to claim 11 supra), except for a direct teaching of a system wherein said motion detector generates said scan speed by monitoring a rotational velocity sensor for at least one wheel upon which said cradle travels during said scanning procedure. However, Kaye does teach at least one wheel upon which said cradle travels during said scanning procedure that receives motion control that is related to camera position (col. 9 lines 43-45.) Additionally, Sussman teaches monitoring of rotational velocity of rollers to determine scan speed (col. 5 lines 16-26; col. 6 lines 24-31.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to monitor a rotational velocity sensor for at least one wheel during a scanning procedure as taught by Sussman, in conjunction with the motion detector of the system as taught by Dunton and Kaye. One of ordinary skill in the art at the time of the invention would have been motivated to combine these teachings in order to correlate the scan speed with the actual speed of the camera as it moves, so that the images are acquired at appropriate timing and the required amount of overlap between scanned images is achieved. The monitored information may also be employed in the later stitching process to associate concurrent images, without requiring the matching of key points on the images.

Regarding claim 32, although the wording is different, the material is considered substantively equivalent to claim 12 as discussed above.

Claims 13, 15-18, 33 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (US #6,304,284) and Kaye (US #5,497,188) as applied to claim 11 above, and further in view of Bohn et al. (US #6,002,124.)

Regarding claim 13, Dunton and Kaye teach all the limitations of claim 13 (see the 103 rejection to claim 11 supra), except for directly teaching a system wherein said scan speed is expressed by a formula:

Scan Speed = Non-Overlapped Scan Distance/Time Interval

where said Non-Overlapped Scan Distance is a length of a non-overlapped region of an immediately-preceding still frame prior to a start of a current still frame, and said Time Interval is a length of time required by said cradle to transport said video camera across said Non-Overlapped Scan Distance to said start of said current still frame. Nevertheless, Bohn teaches scanning of an image to be stitched, where the scan speed is equated in relation to the sampling time of a frame and overlap between frames (col. 11 lines 44-58.) In light of the teachings in Bohn, it would have been obvious to one of ordinary skill in the art at the time the invention was made to calculate scan speed via overlap distance in relation to time, within the system as taught by Dunton and Kaye, in order to properly relocate the camera between images.

Regarding claim 15, Dunton and Kaye teach all the limitations of claim 15 (see the 103 rejection to claim 14 supra), except for directly teaching a system wherein said scanning manager extracts a current still frame of said target object from said video data at a pre-determined time interval during said scanning procedure. Nevertheless, Bohn teaches scanning of an image to be stitched, in which a current still frame of a

target object to be scanned is extracted at a pre-determined time interval during said scanning procedure (col. 11 lines 44-48.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the sampling interval as taught by Bohn, within the scanning manager of the system as taught by Dunton and Kaye. One of ordinary skill in the art at the time the invention was made would be motivated to combine these teachings so that the images later employed in the stitching process will possess the requisite amount of overlap.

Regarding claim 16, Dunton, Kaye, and Bohn teach all the limitations of claim 16 (see the 103 rejection to claim 15 supra), including a teaching a system wherein said scanning manager determines an overlap region between said initial still frame and said current still frame by referencing said scan motion data ('284 col. 4 line 49 – col. 5 line 21.)

Regarding claim 17, Dunton, Kaye, and Bohn teach all the limitations of claim 17 (see the 103 rejection to claim 16 supra), including a teaching a system wherein said scanning manager calculates an overlap length for said overlap region according to a formula:

Overlap Length=Still Frame Length-Non-Overlapped Scan Distance

where said Overlap Length is a distance from a start of said overlap region to an end of said overlap region, said Non-Overlapped Scan Distance is a length of a non-overlapped region of said initial still frame prior to a start of said current still frame, and Still Frame Length is a constant length of one of said still frames ('284 col. 4 line 49 – col. 5 line 6; col. 6 line 43 – col. 7 line 16.)

Regarding claim 18, Dunton, Kaye, and Bohn teach all the limitations of claim 18 (see the 103 rejection to claim 16 supra), including a teaching a system wherein a stitching software program combines said video data in said overlap region between said initial still frame and said current still frame to provide greater image detail and increased image resolution, said stitching software program thereby generating a composite still image of said target object from said initial still frame and said current still frame ('284 col. 4 line 49 – col. 5 line 21; col. 6 line 20 – col. 7 line 43.)

Regarding claims 33 and 35-38, although the wording is different, the material is considered substantively equivalent to claims 13 and 15-18, respectively, as discussed above.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (US #6,304,284) and Kaye (US #5,497,188), in view of Examiner's Official Notice.

Regarding claim 41, Dunton and Kaye teach a system for creating a still image with a video camera, which performs the steps of: transporting said video camera across said target object with a support device during a scanning procedure ('284 col. 4 lines 49-64); analyzing scan motion data from said scanning procedure with a scanning manager ('284 col. 6 lines 20-23); and generating still frames corresponding to said target object by utilizing said scanning manager ('284 col. 4 lines 26-30.) However, although the inputting of programs for the purpose of changing or customizing the system is taught ('188 col. 9 lines 5-20), neither Dunton nor Kaye teach the above steps taking the form of program instructions within a computer-readable medium.

Official Notice is taken that a program of instructions, executable by a machine and programmable directly into a machine, are easily transferred to a computer-readable medium; a concept which is well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have transferred the program of instructions to a computer-readable medium in order to increase the portability of the program from machine to machine.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gelphman et al. (US#4,943,821) discloses a panoramic camera on a carriage, wherein the speed of the motion is linked to camera capture speed.

Borden (US #5,752,113) discloses a panoramic camera mount, including a controller to insure correct overlap for stitching.

Taylor et al. (US #6,493,469) discloses an over-the-desk scanning system that positions video cameras over target objects.

Hayakawa et al. (US #5,550,938) discloses a cordless image scanner, arranged on wheels, which passes over the target object.

Dow et al. (US #6,466,231) discloses an image scanner, scanning as it passes over the target object, and then later stitching the images based on overlap.

Kimura et al. (US #5,497,150) discloses an image scanner, scanning as it passes over the target object, and then later stitching the images based on overlap.

Mancuso et al. (US #6,456,323) discloses a panoramic digital camera, with user selectable overlay length.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary C. Vieaux whose telephone number is 703-305-9573. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary C. Vieaux
Examiner
Art Unit 2612

Gcv2

NGOC-YEN VU
PRIMARY EXAMINER